

CLAIMS

WHAT IS CLAIMED IS:

- 5 1. A system for reducing apparent height of a board system, comprising:
 - a carrier;
 - a component mounted on a first side of the carrier;
 - a printed circuit board with a hole, the hole being structured to accommodate the component; and
- 10 a solder material soldering the carrier to the printed circuit board and providing a structural bond between the carrier and the printed circuit board, at least one portion of the solder material providing an electrical coupling between the carrier and the printed circuit board,
- 15 wherein at least one portion of the component is maintained in the hole after the carrier is soldered to the printed circuit board.
- 20 2. The system according to claim 1, further comprising a paste material disposed between the component and the first side of the carrier.
- 20 3. The system according to claim 2, wherein the paste material is adapted to provide a bond between the component and the carrier and is adapted to provide an electrical coupling between the component and the carrier.

4. The system according to claim 3,

wherein the carrier includes a printed circuit printed on at least the first side of the carrier, and

5 wherein the paste material is adapted to provide an electrical coupling between the printed circuit of the carrier and the component.

10 5. The system according to claim 4, wherein the component is electrically coupled to the printed circuit board via the paste material, the printed circuit of the carrier and the solder material.

6. The system according to claim 3, wherein the paste material has a higher melting temperature than the solder material.

15 7. The system according to claim 1, wherein the solder material provides the only electrical coupling between the carrier and the printed circuit board.

8. The system according to claim 1, wherein the solder material provides the only structural bond between the carrier and the printed circuit board.

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9. A wireless communications device, comprising:
a duplexer;

a carrier board having a first side on which is mounted the duplexer;
a printed circuit board with a hole through which the duplexer fits; and
a solder material soldering the carrier board to the printed circuit board and providing
a structural bond between the carrier board and the printed circuit board, at least one portion
5 of the solder material providing an electrical coupling between the carrier board and the
printed circuit board,

wherein the duplexer is coupled electrically to printed circuit board via the carrier
board and the at least one portion of the solder material.

- 10 10. A computer system, comprising:
 a printed circuit board;
 a packaged integrated chip;
 a carrier having a first side on which the packaged integrated chip is mounted;
a printed circuit board with a hole through which the packaged integrated chip fits; and
15 a solder material soldering the carrier to the printed circuit board and providing a
structural bond between the carrier and the printed circuit board, at least one portion of the
solder material providing an electrical coupling between the carrier and the printed circuit
board,
 wherein the packaged integrated chip is coupled electrically to printed circuit board
20 via the carrier board and the at least one portion of the solder material.

11. A system for reducing apparent height of a board system, comprising:

a printed circuit board with a recess on a first side of the printed circuit board, the hole being structured to accommodate the component; and
a component mounted on the printed circuit board in the recess.

- 5 12. A system for reducing apparent height of a board system, comprising:
a component having a first portion and a second portion, the second portion including
a lateral protrusion;
a printed circuit board with a hole, the hole being structured to accommodate the
component; and
10 a solder material soldering the component to the lateral protrusion and providing a
structural bond between the component and the printed circuit board, at least one portion of
the solder material providing an electrical coupling between the component and the printed
circuit board,
wherein at least part of the first portion of the component is maintained in the hole
15 after the component is soldered to the printed circuit board.

13. A method for reducing apparent height of a component of a printed circuit
board, comprising the steps of:
20 (a) mounting the component on a carrier;
 (b) creating a hole in the printed circuit board, the hole being large enough to
accommodate the component;
 (c) disposing at least a portion of component within the hole of the printed circuit

board; and

- (d) soldering the carrier to the printed circuit board using a solder material.

14. The method according to claim 13, wherein the step of mounting includes the

5 step of pasting the component on the carrier via a paste, the paste providing a bond between the component and the carrier and providing an electrical coupling between the component and the carrier.

15. The method according to claim 13, wherein the step of mounting includes the

10 step of soldering the component to the carrier via a second solder material, the second solder material having a higher melting temperature than the solder material of step (d).

16. The method according to claim 13, wherein the step of soldering includes the

step of providing an electrical coupling between the carrier and the board.

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17. The method according to claim 16, wherein the step of providing includes the

step of providing an only electrical coupling between the carrier and the board.

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18. The method according to claim 13, wherein the step of soldering includes the

step of providing an electrical coupling between the component and the printed circuit board via the carrier and the solder material.

19. The method according to claim 13, wherein the step of soldering includes the step of soldering a top portion of the carrier to a bottom portion of the printed circuit board using the solder material.